REMARKS/ARGUMENTS

The Pending Claims

Independent claim 12 and dependent claims 13-21 are currently pending in the present application. Claim 15 has now been amended to more clearly state that the concentration of extrinsic ions is 1×10^{25} m^{-3}. Support for this amendment may be found at, for example, paragraph [0026] of the specification and thus no new subject matter is added by way of this amendment. Claims 1-11 were canceled by prior amendment. Claim 22 has been withdrawn from consideration, without prejudice or disclaimer of the subject matter therein, via a prior election/restriction requirement.

Summary of the Office Action

The Office Action dated January 21, 2010, rejected claims 12-16 and claims 20-21 under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent 6,652,780 to Stoll ("Stoll") in view of U.S. Patent Publication 2006/0291519 A1 to Buse et al. ("Buse"). Claim 15 was also rejected under 35 U.S.C. § 112, paragraph 1, for allegedly failing to comply with the written description requirement. Applicants gratefully acknowledge that claims 17-19, although objected to, are indicated as containing allowable subject matter.

Only dependent claim 15 has been amended herein as discussed above; all other claims pending herein are unchanged by this response. Reconsideration of the pending claims is respectfully requested in light of the following remarks.

Discussion of the Written Description Rejection under 35 U.S.C. § 112, Second Paragraph

It appears that the value of "1×10^{25} m^{-3}" in claim 15 was unintentionally converted to 1×1025 m^{-3} by a prior response. Amended claim 15, which depends from and incorporates claim 14, now correctly describes that the method, in part, involves foreign atom doping elements comprised of extrinsic ions in the crystal that exist in a "concentration of more than 1×10^{25} m^{-3}." The claim is self-evidently directed to the volumetric concentration of extrinsic ions in the subject crystal. Support for this claim can be found at, for example, paragraph [0009] and paragraph [0026] of the original specification. In particular, paragraph [0026] states that it is "advantageous if the doping elements used for increasing the dark conductivity are extrinsic ions, in particular iron ions in a concentration of more than 1×10^{25} m^{-3}."

Accordingly, it is respectfully submitted that the specification adequately conveys to one of skill in the art that the Applicants were in possession of the subject matter of claim 15 as of the earliest priority date to which this application is entitled. It is further respectfully requested that the written description rejection has been overcome.

Withdrawal of the rejection of claim 15 under 35 U.S.C. § 112, second paragraph, is respectfully requested.

Discussion of the Rejection Under 35 U.S.C. § 103(a)

Stoll describes a process of oxidizing iron atoms in a crystal of iron doped lithium niobate to transform the iron atoms from a divalent state (Fe^{2+}) to a trivalent state (Fe^{3+}). *See* Stoll, col. 2, lines 12-18. The described process involves the steps of (i) protonating the iron-doped lithium niobate; (ii) placing the lithium niobate into a pressure chamber and pressurizing the lithium niobate in an oxygen rich environment; (iii) heating the pressurized lithium niobate to 950° C; (iv) cooling the lithium niobate to room temperature; and (v) de-pronotating the lithium niobate. *See* Stoll, col. 2, lines 31-49. The method of Stoll is said to result in a concentration of divalent / trivalent iron atoms that optimizes write sensitivity and minimizes erase sensitivity of the lithium niobate crystal when used as a holographic recording medium. *See* Stoll, col. 1, lines 24-31 and col. 3, lines 29-32.

Buse describes a method of desensitizing lithium niobate crystals against damage from exposure to light. *See* Buse, Abstract. The method involves altering the proton concentration of the crystal to increase the dark conductivity and reduce the strength of space-charge fields within the crystal which in turn enhances optical damage resistance. *See* Buse, paragraph [0017].

As an initial matter, it is respectfully submitted that Buse is not properly applied as prior art to the present application. Buse has a publication date of December 28, 2006 and a PCT international filing date of December 19, 2003. The international filing date of the present application is July 14, 2006. It is assumed that the Office Action qualifies Buse as prior art under 35 U.S.C. § 102(e). However, the application to Buse has been assigned to Deutsche Telekom AG of Bonn, Germany, by an assignment recorded at Reel/Frame 018632/0140. The present application is also assigned to Deutsche Telekom AG by an assignment recorded at Reel/Frame 018510/0908. Section 103(c) of Title 35 of the United States Code states:

> Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

It is respectfully submitted that the recorded assignments establishes that the inventors of the present invention and the inventors listed on Buse were, at the time the present invention was made, both under an obligation to assign their rights to Deutsche Telekom AG. Accordingly, by operation of 35 U.S.C. § 103(c), Buse should not qualify as prior art and the obviousness rejections based on the proposed combination of Buse and Stoll are improper.

It is respectfully further noted that the Buse U.S. Patent Publication 2006/0291519 A1 claims priority to International Application No. PCT/DE03/04191 and German Application No. DE 10300080 A1. A Delphion search reveals that both these applications were published on July 24, 2004. The present application claims foreign priority to German Application No. DE 10 2004 002 109.0 filed on January 14, 2004, which antedates the publication date of both International Application No. PCT/DE03/04191 and German Application No. DE 10300080 A1. A certified copy of that German Application No. DE 10 2004 002 109.0 has been submitted in the present U.S. application and the Office Action acknowledges Applicants' claim for foreign priority. Accordingly it is respectfully submitted that neither the international or German applications to Buse are prior art to the present application.

Moreover, independent claim 1 of the present application recites "removing, during the oxidation process, the liberated electrons from the crystal using an external current source so as to reduce an optical absorption value of the crystal." Stoll describes protonating a lithium niobate crystal before it is placed in an oxygen-rich pressure chamber and heated to oxidize a portion of the divalent iron ions (Fe^{2+}) to trivalent iron ions (Fe^{3+}). Protonation refers to the addition of a proton to an atom, molecule or ion. Stoll further describes "the protonation of such crystal will enable the iron ions contained therein to be oxidized at lower temperatures than prior art methods." *See* Stoll, col. 4, lines 35-39. Hence, Stoll implies that oxidation of the iron atoms from divalent (Fe^{2+}) to trivalent (Fe^{3+}) is due to an increased presence of protons from the protonating step and is not due to liberating or freeing any electrons from the iron atoms. In other words, Stoll does not disclose, either explicitly or

inherently, liberating electrons or removing those liberated electrons from a crystal "during the oxidation process," as required by claim 1.

Likewise, Buse describes increasing the proton concentration of lithium niobate crystals to enhance the crystal's dark conductivity which in turn minimizes its susceptibility to optical damage. *See* Buse, paragraph 17. It is not evident from the disclosure of Buse that increasing proton concentration liberates any electrons or that application of an electric field to the crystal as discussed in paragraphs [0028] and [0030] of Buse removes any liberated electrons. Hence, it is respectfully submitted the proposed combination of Stoll and Buse, to the extent proper, could not render claims 12-16 and 20-21 obvious.

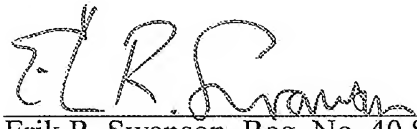
Withdrawal of the rejection of claims 12-16 and 20-21 under 35 U.S.C. § 103(a) is respectfully requested.

Conclusion

Applicant respectfully submits that the patent application is in condition for allowance. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

No fees are believed to be due with the filing of this response. In the event of a fee discrepancy, please charge any fees due in connection with this filing to Deposit Account No. 12-1216 referencing Docket No. 810097.

Respectfully submitted,



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